

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
29 September 2005 (29.09.2005)

PCT

(10) International Publication Number  
**WO 2005/091177 A3**

(51) International Patent Classification<sup>7</sup>: **G06F 17/50**

(21) International Application Number:  
PCT/EP2005/002638

(22) International Filing Date: 10 March 2005 (10.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
04300130.4 10 March 2004 (10.03.2004) EP

(71) Applicant (for all designated States except US): RE-NAULT S.A.S. [FR/FR]; 13, 15 quai Alphonso le Gallo, F-92100 Boulogne Billancourt (FR).

(72) Inventor; and

(75) Inventor/Applicant (for US only): BOUTIN, Samuel [FR/FR]; 10, chemin de la Chapelle, F-78114 Magny-les-Hameaux (FR).

(74) Agent: DAVIES, Owen; TCR-GRA 1 55 -Sce 0267, 1 Avenue du Golf, F-78288 Guyancourt (FR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

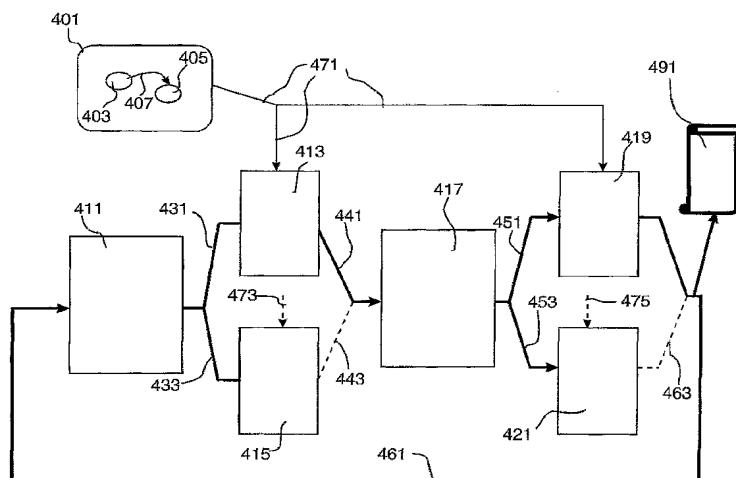
**Published:**

— with international search report

(88) Date of publication of the international search report: 30 March 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A VALIDATION METHOD FOR EMBEDDED SYSTEMS



(57) **Abstract:** The present invention provides a method of designing a validation environment for a service implemented by an embedded electrical system. To implement the method it is necessary to assign to that service one or more "user requests" and "system responses". Next, it is necessary to assign to the service a behavioral automata, which fixes the allowed sequencing of the user requests and system responses. When this has been done, a skeleton validation environment is automatically generated for the service. The skeleton validation environment comprises a testing automata produced from a traversal of said behavioral automata, a model of initial conditions, models of user requests, models of system response accuracy, an environmental model and the dataflow and control flow assembling these models together. The skeleton validation environment covers all user requests and resultant system responses of the service. The skeleton validation environment is then recorded in a computer readable memory device for use by a design validation tool.

**WO 2005/091177 A3**